Switchless REC/PB amplifier for standard audio signal processing
BA7757BK

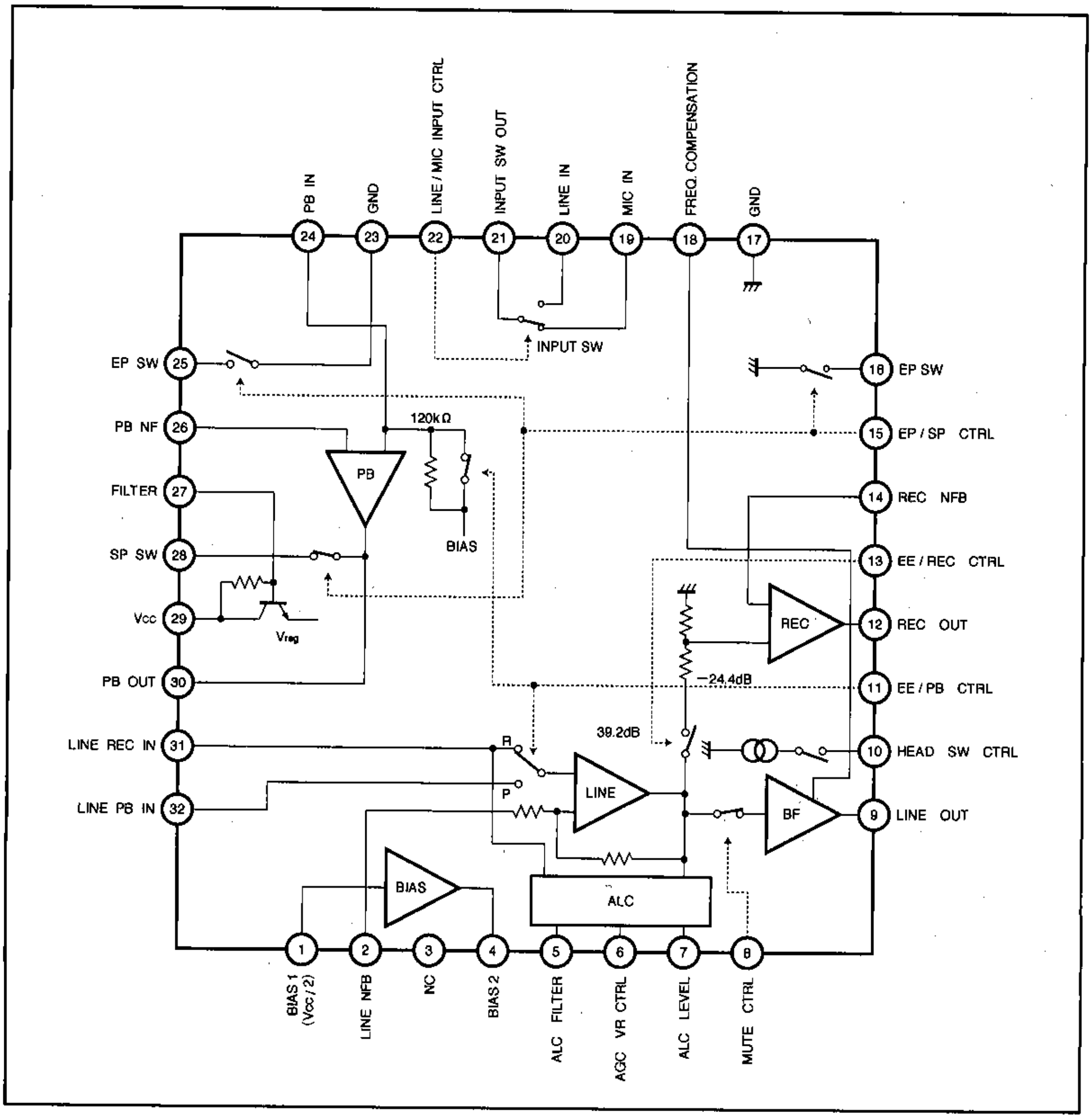
The BA7757BK contains a playback equalizer amplifier, an REC/PB switch, a line amplifier, an ALC circuit with built-in detector, a recording amplifier, an analog switch for input switching, and a logic control circuit for independent switching of REC/EE, PR/EE, line mute and input.
The IC is easy to interface with control systems, and features low noise during mode switching and at power on/off. The line amplifier and recording amplifier are directly connected internally, allowing construction of a high-performance audio signal processing circuit for VCRs using a minimum number of external components.

●Features

1)All necessary switches for audio signal processing are built-in.
- MIC/LINE input selector switch.
- EP/SP equalizer selector switch.
- Built-in head switch on the playback side of the head for head switching for REC/PB, and a head-switch driver terminal provided on the recording side.
- EE/PB and EE/REC selector switches (compatibility with after-recording mode (AFR) is possible).
- Line muting switch.

2)All control functions are independent, so interfacing with the control system is simple.
3)Amplifiers required for audio recording and playback are provided on the IC.
4)Excellent S/N and distortion specifications through use of high-level ALC VR.
5)The ALC level is set using a external resistor, and variation due to temperature is extremely low.
6)Built-in ripple filter gives excellent ripple rejection.
7)Low noise generation when power is switched on and off, and during control system switching.
8)The line output can directly drive earphone.
9)Few external parts required.
10)Available in a QFP32 package, for high-density mounting.
11)Low power consumption.

● Block diagram



●Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	8.0*1	V
Power dissipation	Pd	400*2	mW
Operating temperature	Topr	−10~65	℃
Storage temperature	Tstg	−55~125	℃

* 1 When IC is stand alone.
* 2 Reduced by 4mW for each increase in Ta of 1°C over 25°C.

●Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Power supply voltage	V_{CC}	4.0	−	6.0	V	−

●Electrical characteristics (Unless otherwise specified Ta=25℃, Vcc=5V, and f=1kHz)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current (SP mode)	I_{qSP}	−	7.0	9.8	mA	No signal, EE and SP mode
Quiescent current (EP mode)	I_{qEP}	−	8.0	11.2	mA	No signal, EE and EP mode
〈Line amplifier〉						LINE IN~LINE OUT
Distortion	$DISTN_{EE}$	−	0.06	0.2	%	LINE IN~LINE OUT, V_{IN}=−25dBV*1
Maximum output level	V_{OmL}	0.75	1.1	−	V_{rms}	DISTN=1%,*1
ALC level	V_{OA}	−6.8	−5	−3.2	dBV	V_{IN}=−15dBV
ALC distortion	$DISTN_{A}$	−	0.08	0.2	%	V_{IN}=−15dBV*1
〈Recording amplifier〉						LINE IN~REC OUT
Gain	G_{VR}	39.1	40.8	42.5	dB	V_{IN}=−25dBV, input attenuation conversion
Distortion	$DISTN_{R}$	−	0.06	0.2	%	V_{IN}=−25dBV*1
Maximum output level	V_{OmR}	0.85	1.2	−	Vrms	DISTN=1%*1
〈Input switch〉						MIC IN~SW OUT
Gain	G_{VSW}	−0.5	0	−	dB	V_{IN}=−14dBV
Distortion	$DISTN_{SW}$	−	0.002	0.1	%	V_{IN}=−14dBV*1
Input resistance	Z_{INM}	−	75	−	kΩ	
Maximum output level	V_{Omsw}	0.85	1.2	−	Vrms	DISTN=1%*1

* 1 Measured at BW 0.4 to 30kHz.

●Measurement circuit (Units: R (Ω) , C: (F))

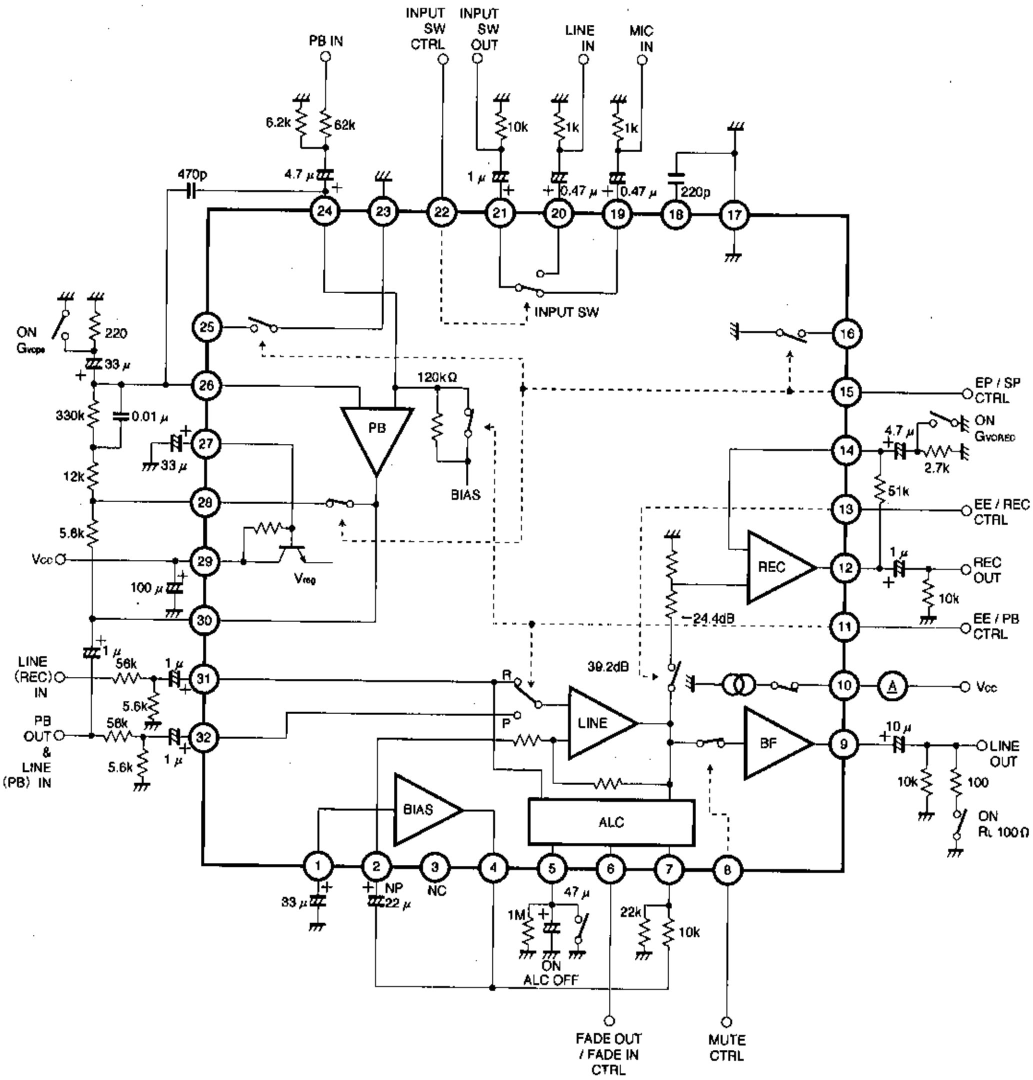


Fig.1

●Application example (Units: R (Ω) , C: (F))

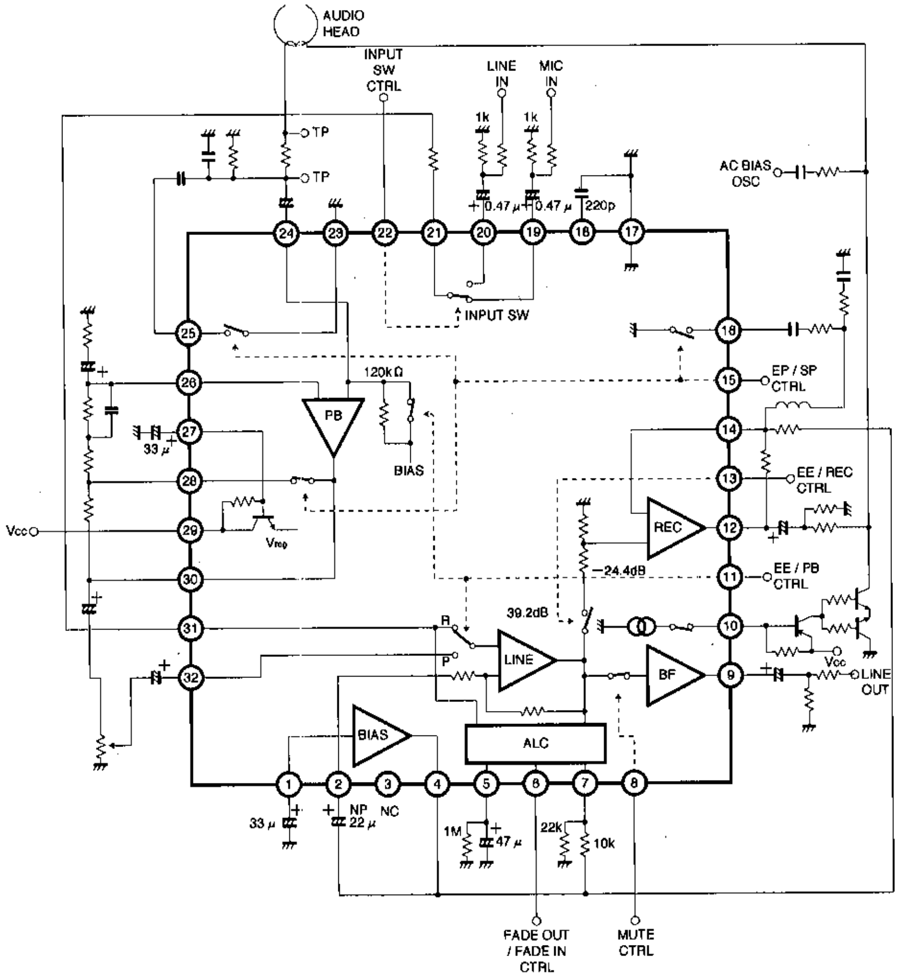
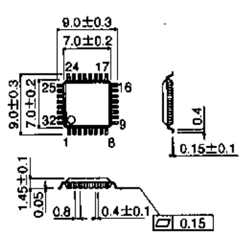


Fig.2

●External dimensions (Units: mm)



QFP32